

Richard J. Lee

Affiliation: RJ Lee Group, Inc.
350 Hochberg Road
Monroeville, PA 15146

Education: Ph.D., Theoretical Solid State Physics, 1970, Colorado State University
B.S., Physics, 1966, University of N. Dakota

Career/Employment:

- RJ Lee Group, Inc., President, 1986- Present
- U. S. Steel Technical Center, Head - Physics, Electron Microscopy and Surface Analysis Section, 1973 - 1985
- Purdue University, Associate Professor, 1971
- Purdue University, Assistant Professor, 1970
- Lake Region Junior College, Instructor, 1966

Summary:

- Development and application of quantitative computer-controlled electron microscopy techniques;
- Pioneered the use of quantitative electron diffraction techniques for the identification of asbestos;
- Development of automated techniques for combined x-ray microanalysis and electron microscopy;
- Development of automated electron diffraction pattern analysis techniques and application to environmental problems, asbestos analysis, coal mineral characterization, and quantitative metallography.

Honors, Awards, Fellowships & Memberships:

- Microbeam Analysis Society (Board of Directors 1987 - 1990)
- Microscopy Society of America
- Air & Waste Management Association
- ASM International
- ASTM Committee D-22
- American Physical Society
- American Chemical Society
- American Concrete Institute
- Materials Research Society
- Society for Mining, Metallurgy, and Exploration, Inc.
- International Standards Organization
- Health Effects Institute - Asbestos Research Literature Review Panel
- EPA Scientific Review Panel on Air Chemistry and Physics (1989)
- EPA Select Panel for Development of Methodology for Asbestos Analysis by Transmission Electron Microscopy (1987-Present)
- Advisor on asbestos analysis to the Environmental Protection Agency
- External Advisory Committee for the College of Natural Sciences, Colorado State University
- National Defense Education Act Fellowship - 4 years

Publications:

- Number of papers in refereed journals - 17
- Number of communications to scientific meetings - 76
- Books/Chapters - 3
- Invited Technical Papers - 16

Patents: 3

Publications & Presentations

Richard J. Lee

Badger, S., B. Clark, S. Sahu, N. Thaulow, and R.J. Lee, "Determination of the Water to Cement Ratio of Hardened Concrete Utilizing Backscattered Electron Imaging", Presented at the Transportation Research Board Conference, Washington D.C., January 2001.

Cassuccio, G., B. Osgood, S. Badger, R. Lee, "Investigation of Nuisance Dust Near A Cement Plant", Presented at the Air & Waste Management Association's 93rd Annual Conference, Salt Lake City, UT, June 2000.

Thaulow, N., R. Lee, K. Wagner, and S. Sahu, "Effect of Calcium Hydroxide Content on the Form, Extent, and Significance of Carbonation", presented at the Calcium Hydroxide / CH Workshop, Anna Maria Is., Florida, November 2000.

Sahu, S., Boyd A. Clark and Richard J. Lee, "Delayed Ettringite Formation and the Mode of Concrete Failure", Materials Science of Concrete - The Sidney Diamond Symposium, pp. 379-394, (1998).

Badger, S., N. Ritchie, R.J. Lee, and N. Barbie, "New Technology to Measure Steel Cleanliness Using Computer-Controlled Scanning Electron Microscopy", AISE Conference Proceedings, 1998.

Badger, S., and R.J. Lee, "Innovative Microscopic Investigations in Cement and Concrete", Engineering Foundation Conference, 1998.

Badger, S., R.J. Lee, and L. Zhu, "Using Computer-Controlled Scanning Electron Microscopy (CCSEM) to Measure Steel Cleanliness", Electric Arc Furnace Conference Proceedings, 1998.

Lee, Richard J., Drew R. Van Orden, Ian M. Stewart, "Dust and Airborne Concentrations - Is there a Correlation?", Advances in Environmental Measurement Methods for Asbestos, ASTM STP 1342, M.E. Beard, H.L. Rook, Eds., American Society for Testing Materials, 1998.

Lee, Richard J., A.J. Schwoeble, H.P. Lentz, "Application of SEM in Forensic Science", Presented at the Scanning Microscopy International Meeting, May, 1993 and to the Southern Association of Forensic Scientists, Auburn, AL, April, 1996.

Lee, R. J., T. V. Dagenhart, G. R. Dunmyre, I. M. Stewart, and D. R. Van Orden, "Response to Comment on "Effect of Indirect Sample Preparation Procedures on the Apparent Concentration of Asbestos in Settled Dusts", Environmental Science & Technology, Vol. 30, No. 4, pp. 1405-1406 (1996).

Lee, R. J., D. R. Van Orden, G. R. Dunmyre, "Interlaboratory Evaluation of the Breakup of Asbestos-Containing Dust Particles by Ultrasonic Agitation", Environmental Science & Technology, Vol. 30, Number 10, pages 3010-3015 (1996).

Lee, R. J., R. G. Florida, I. M. Stewart, "Asbestos Contamination in Paraffin Tissue Blocks", Archives of Pathology & Laboratory Medicine, Vol. 119, June (1995).

Kennedy, S. K., G. S. Casuccio, R. J. Lee, G. A. Slifka, M. V. Ruby, "Microbeam Analysis of Heavy Element Phases in Polished Sections of Particulate Material - An Improved Insight into Origin and Bioavailability", Sampling Environmental Media, ASTM STP 1282, James Howard Morgan, Ed., American Society for Testing and Materials (1996).

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Richard J. Lee

Lee, R. J., T. V. Dagenhart, G. R. Dunmyre, I. M. Stewart, and D. R. Van Orden, "Effect of Indirect Sample Preparation Procedures on the Apparent Concentration of Asbestos in Settled Dusts", *Environmental Science & Technology*, Vol. 29, No. 7, pp. 1728-1736, (1995).

J. H. Lange, K. W. Thomulka, R. J. Lee, G. R. Dunmyre "Evaluation of Lift and Passive Sampling Methods During Asbestos Abatement Activities", *Bull. Environ. Contam. Toxicol.* 55: 325-331 (1995).

Oehlert, Gary W., Richard J. Lee and Drew Van Orden, "Statistical Analysis of Asbestos Fibre Counts", *Environmetrics*, Vol. 6, pp. 115-126 (1995).

Lange, J. H., K. W. Thomulka, R. J. Lee, G. R. Dunmyre, and F. C. Schwerer, "Surface and Deposition Sampling in a Mechanical Room that Contains Pipe and Boiler Asbestos Insulation", *Toxicological and Environmental Chemistry*, Vol. 50, pp. 51-56 (1995).

Clark, B. A., P. W. Brown, A. J. Schwoeble, Yuan Jie, and R. J. Lee, "Comparison of Ettringite Morphologies Observed on Fracture Surfaces and in Thin Sections", *The American Ceramic Society 97th Annual Meeting*, Cincinnati, OH, April 1995.

Lee, R. J., Mark L. Demyanek, F. C. Schwerer, K. A. Allison, G. R. Dunmyre, "Air, Surface, and Passive Measurements in a Building During Spray- Buffing of Vinyl-Asbestos Floor Tile", *Applied Occupational Environmental Hygiene*, 9(11):869-875; (1994).

Van Orden, D. R., R. J. Lee, K. M. Bishop, D. Kahane, and R. Morse, "Evaluation of Ambient Asbestos Concentrations in Buildings Following the Loma Prieta Earthquake", *Regulatory Toxicology and Pharmacology*, Vol. 21, pp. 117-121, June (1994).

Lee, R. J., D. A. Warner, H. P. Lentz. "Use of the Personal SEM for Evaluation of Cementitious Products." Presented to the International Cement Microscopy Association, Dallas, TX, March (1993).

Clark, B.A., R.J. Lee. "Energy Dispersive X-Ray Analysis of Cement Paste Features Resulting From Heat Treatment." Presented at the American Ceramic Society 95th Annual Meeting, Cincinnati, OH, April 1993.

Wagner, K. E., R. J. Lee. "Microscopic Crack Pattern Evaluations on Hardened Concrete — Comparison Between Sound and Deteriorated Members." Presented to the American Ceramic Society 95th Annual Meeting, Cincinnati, OH, April 1993.

Lange, J. H., J. W. Grad, P. A. Lange, K. W. Thomulka, G. R. Dunmyre, R. J. Lee, C. F. Richardson, and R. V.H. Blumershine, "Asbestos Abatement of Ceiling Panels and Mold Growth in a Public School Building After Water Damage: A Case Study of Contaminant Levels", *Fresenius Envir. Bull.* 2, pp. 13-18 (1993).

Demyanek, Mark L., G. R. Dunmyre, R. J. Lee, Ph.D., C. F. Richardson, X. Li, "Adhesive Lift and Passive Particulate Sampling Technology", Presented at the Industrial Hygiene Monitoring Symposium, March 1993.

Publications & Presentations

Richard J. Lee

Kennedy, Stephen K., Dean Gerber, Michael Owen, Richard J. Lee. "Computer Controlled SEM/EDS and Spectrographic Cathodoluminescence Analysis of Quartz Silt." Presented at Microscopy Association of America, July 1993.

Lange, J. H., R. J. Lee and G. R. Dunmyre, "Monitoring Asbestos in an Industrial Facility Using Surface Dust and Passive Air Samplers, Emerging Technologies for Hazardous Waste Management:, 1992 Book of Abstracts for the Special Symposium, Atlanta, GA, Industrial & Engineering Chemistry Division, American Chemical Society.

Dagenhart, Thomas V., Jr., Xu, Li, Lee Richard J., Florida, Robert G., "TEM/SAED/EDXA Study of Crystallographic Relations Among Talc and Magnesio-Anthophyllite Which Occur Together in Compound Fibers", Presented at the Annual Meeting of the Geological Society of America, Boston, MA, October 1993.

Clark, B. A., A. M. Dalley, Y. Jie, J. Skalny, and R. J. Lee, "TEM and EDS Analysis of Cement Paste in Concrete and Experimental Mortars", Poster Session American Ceramic Society PAC RIM Meeting, Honolulu, Hawaii, November 1993.

Skalny, J., B. A. Clark, and R. J. Lee, "Alkali-Silica Revised", 15th International Conference on Cement Microscopy, Dallas, Texas; March 1993.

Stewart, I. M., R. J. Lee. "Considerations in the Regulation of Actinolite, Tremolite and Anthophyllite." Presented to the SME 121st Annual Meeting, Phoenix, AZ, February 1992.

Lee, R. J., A. J. Schwoeble, Y. Jie. "Use of Backscattered Electron Image Intensity Signals to Calculate the Water/Cement Ratio of Concrete." Presented to the EMSA 50th Anniversary Meeting, Boston, MA, August 1992.

Jie, Y., A. J. Schwoeble, R. J. Lee. "Influence of Ashing in Concrete Samples for Carbon Coating Removal." Electron Microscopy I, 5th Asia-Pacific Electron Microscopy Conference, Beijing, China, World Scientific, K. H. Kuo and Z. H. Zhai, Editors, August 1992, pp. 450-451.

Lee, R. J., G. R. Dunmyre, G. J. Kotyk, K. E. Scutt. "The Effects of Ultrasonic Resuspension During Dust Sample Preparation for Transmission Electron Microscopy Analysis on Asbestos Fiber Concentrations." Presented to the Environmental Management 9th Annual Conference of NAC, Pittsburgh, April 1992.

Kennedy, S. K., G. A. Cooke, R. J. Lee, J. P. Skalny. "Mathematical Unmixing of Aggregate Types in Concrete Products Using Q-Mode Factor Analysis - Method and Case Study." Proceedings of the 14th International Conference on Cement Microscopy, International. Cement Microscopy Association., Costa Mesa, CA, April 1992, pp. 359-378.

Lee, R. J., G. R. Dunmyre. "Surface and Passive Air Samplers." Presented to the ASTM 1992 Johnson Conference, Johnson, VT, July 1992.

Lee, R. J., D. R. Van Orden, M. Corn, and K. S. Crump. "Exposure to Airborne Asbestos In Buildings." Regulatory Toxicology and Pharmacology, Vol. 16, March 1992, pp. 93-107.

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Richard J. Lee

Lee, R. J., G. R. Dunmyre. "Direct Preparation: Innovative Sampling Technology, Applications for Other Indoor Air Contaminants." Presented to Settled Dust Sampling: Asbestos and Other Particulates, Georgia Tech Research Institute, Atlanta, GA, April 1992.

Skalny, J. P., B. A. Clark, R. J. Lee. "Alkali-Silica Reaction Revisited." Proceedings of the 14th International Conference on Cement Microscopy, Intl. Cement Microscopy Assoc., Costa Mesa, CA, April 1992, pp. 309-324.

Clark, B. A., E. A. Draper, R. J. Lee, J. Skalny, M. Ben-Bassat, A. Bentur. "Electron-Optical Evaluation of Concrete Cured at Elevated Temperatures." Proceedings of the American Concrete Institute, San Juan, Puerto Rico, October 1992.

Clark, B. A., A. J. Schwoeble, R. J. Lee, J. Skalny. "Detection of ASR in Opened Fractures of Damaged Concrete." Cement and Concrete Research, Vol. 22, November 1992, pp. 1170-1178.

Wylie, A.G., K. F. Bailey, J. W. Kelse, R. J. Lee. "The Importance of Width in Asbestos Fiber Carcinogenicity and its Implications for Public Policy." American Industrial Hygiene Association Journal. Vol. 54, Number 5, May 1993. pp. 239-252.

Corn, M., K. Crump, D. B. Farrar, R. J. Lee, D. R. McFee. "Airborne Concentrations of Asbestos in 71 School Buildings." Regulatory Toxicology and Pharmacology, Vol. 13, March 1991, pp. 99-114.

Lee, R. J., B. A. Smith, I. M. Stewart. "Discriminating Between Asbestos and Nonasbestos AT&A." Presented to the Society for Mining, Metallurgy, and Exploration, Inc. Conference, Denver, CO, February 1991.

Thaulow, N., R. J. Lee, J. Holm, "An Integrated Optical-SEM Method for the Identification of Alkali-Silica Reaction in Concrete Sleepers." Proceedings of The International Symposium on Precast Concrete Railway Sleepers, Madrid, Spain, April 8-11, 1991, pp. 505-533.

Lee, R. J., A. J. Schwoeble, K. E. Wagner, Y. Jie. "Integration of Multiple Advanced Analytical Techniques to Study Alkali Silica Reactivity in Concrete Railroad Ties." Presented to the Engineering Foundation Conference, Advances in the Production & Utilization of Cement-Based Materials. Potosi, MO, July 1991.

Lee, R. J., E. A. Draper, J. P. Skalny. "Advanced Methods of Concrete Characterization." Proceedings of the Materials Research Society, Fall Meeting, Boston, MA, Vol. 245, 1991, pp. 349-358.

Lee, R.J., A.J. Schwoeble, K.E. Wagner, J. Yuan, "A Combination of Analytical Methods for Identification of Reactive Aggregate in Concrete Rail Road Ties", Proceedings of the 1991 Engineering Foundation Conference on Concrete Processing and Use.

Lee, R. J., G. S. Casuccio. "Characterization of Toxic Particulate Matter Using CCSEM and Microimaging Techniques." Presented to SME Annual Meeting." Salt Lake City, UT, March 1990.

Publications & Presentations
Richard J. Lee

Lee, R. J., Testimony to the Occupational Safety and Health Administration on Notice of Proposed Rulemaking - Occupational Exposure to Asbestos: Tremolite, Anthophyllite and Actinolite, 29 CFR parts 1910 and 1926. Washington, DC, May 1990.

Dagenhart, T., J. Fisher, K. Bishop, G. Dunmyre, R. J. Lee. "The Pyroxenes: Common Rock-Forming Minerals Which May be Confused with the Amphiboles." Presented to the National Asbestos Council, Inc., San Antonio, TX, February 1990.

Lee, R. J. "The Impact of Computers on Modern Microscopy." Presented to Metro Microbeam Group, Paramus, NJ, November 1990.

Lee, R., J. Schlaegle, G. Cooke, T. Powers. "Determination of Low-Level Asbestos in Bulk Samples Using Scanning Electron Microscopy." Presented to National Asbestos Council, Inc., Phoenix, AZ, September 1990.

Dagenhart, T. V., J. Fisher, K. Bishop, G. R. Dunmyre, R. J. Lee. "Fibrous Pyroxenes: Common Rock-Forming Minerals Which May Be Confused with the Amphiboles." Presented to the National Asbestos Council Seventh Annual Asbestos Abatement Conference, San Antonio, TX, February 1990.

Kim, D. S., P. K. Hopke, G. S. Casuccio, R. J. Lee, S. E. Miller, G. M. Sverdrup, R. W. Garber. "Comparison of Particles Taken from the ESP and Plume of a Coal-Fired Power Plant." Atmospheric Environment, Vol. 23, No. 1, 1989, pp. 81-84.

Casuccio, G. S., A. J. Schwoeble, B. C. Henderson, R. J. Lee, P. K. Hopke, G. M. Sverdrup. "The Use of CCSEM and Microimaging to Study Source/Receptor Relationships." Presented to the ACPA/EPA Specialty Conference on Receptor Models in Air Resources Management, San Francisco, CA, February 1988; published in Receptor Models in Air Resources Management, Air Pollution Control Association, Pittsburgh, PA, 1989.

Van Orden, D. R., I. M. Stewart, R. J. Lee. "AHERA Quality Assurance Requirements for the Electron Microscopy Laboratory." Presented to the National Asbestos Council, Inc., Sixth Annual Asbestos Abatement Conference and Exposition, Session 42, Anaheim, CA, March 1989.

Schlaegle, J., G. Casuccio, R. Lee, G. Dunmyre. "Evaluation of Asbestos Content in Settled Dust Samples Using CCSEM and Microimaging Techniques." Presented to National Asbestos Council, Inc., Indianapolis, IN, September 1989.

Lee, R. J. "Automated Techniques for Quantitative Measurement of Particulates and Fibers." Presented to Eighth Annual Symposium on Advances in Microscopy, Duke University, North Carolina, September 1989.

Xu Li, J. Xingxing, Wu Zi-qin, R. J. Lee, G. R. Dunmyre, K. L. Anderson. "Thin Film Standardless Analysis Used in TEM Asbestos EDS Analysis." Proceedings of the 46th Annual Meeting of the Electron Microscopy Society of America, San Francisco Press, 1988.

Lee, R. J., K. L. Anderson, Xu Li. "Common Errors in the Identification of Asbestos by the Visual Interpretation of Electron Diffraction Patterns." Presented to the National Asbestos Council, Session 43, Atlanta, GA, February 1988; and InterMicro Group Meeting, Chicago, IL, June 1988.

Publications & Presentations
Richard J. Lee

Casuccio, G. S., A. J. Schwoeble, B. C. Henderson, R. J. Lee, P. K. Hopke, G. M. Sverdrup. "The Use of Computer-Controlled SEM and Microimaging to Assist in Airborne Particulate Characterization." Presented to the Fine Particle Society, Santa Clara, CA, July 1988.

Hopke, P. K., Y. D. Adewuyi, G. S. Casuccio, W. J. Mershon, R. J. Lee. "The Use of Fractal Dimension to Characterize Individual Airborne Particles." Presented to the 1988 EPA/APCA Symposium on Measurement of Toxic and Related Air Pollutants, Raleigh, NC, May 1988; published in Measurement of Toxic and Related Air Pollutants, Air Pollution Control Association, Pittsburgh, PA, 1988, pp. 548-555.

Lee, R. J., R. M. Fisher. "U. S. Asbestos Issues and Regulatory Compliance Procedures." Presented to Seminar on Asbestos, JEOL LTD, Tokyo, Japan, November 1988.

Lentz, H. P., W. J. Mershon, D. W. Weihe, R. J. Lee. "Offline Microscopy: Bringing the Electron Microscope to the Engineer." Presented to Electronic Imaging East, Boston, MA, October 1988.

Lee, R. J., I. M. Stewart, G. R. Dunmyre. "Evaluation of Asbestos Contamination in PC and MCE Filters." Presented to the National Asbestos Council, Boston, MA, September 1988.

Cheng, Wanrong, R. J. Lee. "Step Shape F (rz) Model and Non-Standard Ultra Light Element Analysis Program." Presented to the Microbeam Analysis Society, Milwaukee, WI, August 1988.

Xu Li, Jin Guang-xiang, Wu Zi-qin, R. J. Lee. "A Directly Calculated Quadrilateral Model for F (rz)." Presented to the Microbeam Analysis Society, Milwaukee, WI, August 1988.

Xu Li, Jin Guang-xiang, Wu Zi-qin, R. J. Lee. "Standardless EDS Analysis Using a Calculated Quadrilateral Model." Presented to the Microbeam Analysis Society, Milwaukee, WI, August 1988.

Lee, R. J. "Clearance Monitoring Under AHERA Regulations." Presented to the ASTM Johnson Conference, Johnson County, VT, July 1988.

Lee, R. J. "Applications of Imaging Techniques in Metallurgy." Presented to Alcoa Laboratories Centennial Technical Symposium on Sensor Technology, Uniontown, PA, June 1988.

Lee, R. J., D. R. Van Orden, G. R. Dunmyre (contributing authors). "Assessing Asbestos Exposure In Public Buildings." EPA 560/5-88-002, Washington, D.C., May 1988.

Lee, R. J., I. M. Stewart. "Living with TEM Clearance." ECON, April 1988.

Lee, R. J. "Overview of Asbestos Analysis Techniques." Presented to Bay Area Chapter Microbeam Analysis Society, Berkeley, CA, January 1988.

Chopra, K. S., R. J. Lee. "Electron Microscopy of Asbestos." Presented to the 1988 Scanning Microscopy Meeting, St. Louis, MO, May 1988.

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Richard J. Lee

Kim, D. S., P. K. Hopke, G. S. Casuccio, R. J. Lee. "Source Composition Profiles from CCSEM." Presented to the 80th Annual Meeting of the Air Pollution Control Association, New York, NY, June 1987.

Kim, D. S., P. K. Hopke, D. L. Massart, L. Kaufinan, G. S. Casuccio, R.J. Lee. "Multivariate Analysis of CCSEM Auto Emission Data." Presented to the Second International Symposium on Highway Pollution, London, July 1986; published in *The Science of the Total Environment*, Vol. 59, Elsevier Science Publishers B.V., Amsterdam, 1987.

Hopke, P. K., D. S. Kim, R. J. Lee, G. S. Casuccio. "Use of a Rule-Building Expert System for Classifying Single Particles Based on SEM Analysis." Presented to EPA/APCA Symposium on Measurement of Toxic and Related Air Pollutants, Raleigh, NC, May 1987; and APCA Specialty Conference, NC, June, 1987; published in *Measurement of Toxic and Related Air Pollutants*, Air Pollution Control Association, Pittsburgh, PA, 1987, pp. 496-501.

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Lee, R. J., J. S. Walker, J. J. McCarthy. "Evolution of Automated Electron Microscopy." Presented to Electron Microscopy Society of America, Microbeam Analysis Society, Albuquerque, NM, August 1986.

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Dunmyre, G. R., R. J. Lee, G. S. Casuccio, B. A. Smith. "Rapid Electron Microscopy Techniques for Clearance Testing." Presented to the Air Pollution Control Association International Specialty Conference, Atlantic City, NJ, November 1986.

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Lentzen, D. E., R. J. Lee, G. S. Casuccio, G. R. Dunmyre. "Sampling and Analyses for Airborne Asbestos and Other Inorganic Particulates." Presented to the National Asbestos Council, New Orleans, LA, September 1986.

Lee, R. J., J. S. Walker. "Application of Computer-Controlled Microscopy in Applied Mineralogy." Presented to the General Meeting of the International Mineralogical Association, Stanford, CA, July 1986.

Lee, R. J., G. S. Casuccio. "Rapid Turnaround for TEM Asbestos Measurements." Presented to 1986 Johnson Conference, Johnson, VT, July 1986.

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Richard J. Lee

Lee, R. J., J. S. Walker. "Automation in Microscopy." Presented to the Society of Photographic Scientists and Engineers, Newport, RI, December 1985.

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Lee, R. J., J. S. Walker. "Automatic Image Analysis in Applied Mineralogy." Presented to the International Congress of Applied Mineralogy, Los Angeles, CA, February 1985.

Lee, R. J. "Scanning Electron Microscopy." Receptor Modeling in Environmental Chemistry, John Wiley & Sons, New York, **NY**, 1985.

Lee, R. J., J. S. Walker, R. L. Nordstrom, G. S. Casuccio. "Automated Electron Microscope Techniques for the Analysis of Asbestos and Other Airborne Particulates." Presented to the Specialty Conference on Asbestos Abatement, Washington, DC, March 1984; published in EPA Guidelines on Asbestos Abatement Procedures, 1984.

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Walker J. S., R. J. Lee. "Ternary Representation of Particle Composition from SEM-EDS Automated Particle Analysis: An Application of Object Vector Image Analysis." Scanning Electron Microscopy, SEM, Inc., AMF O'Hare, IL, 1984.

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Kelly, J. F., R. J. Lee. "SEM/X-Ray Signal Processing Applied to Quantitative Metallography." Presented to 112th AIME Annual Meeting, Atlanta, GA, March 1983.

Mould, R. P., J. S. Lally, R. J. Lee. "Assessment of Sheet Steel Cleanliness." Presented to the American Society for Metals, Plymouth, MI, April 1983.

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Richard J. Lee

Casuccio, G. S., **1.8** Janocko, R. J. Lee, J. F. Kelly. "The Role of Computer Controlled Scanning Electron Microscopy in Receptor Modeling." Presented to the 75th Annual Meeting of the Air Pollution Control Association, New Orleans, LA, June 1982.

Fisher, R. M., R. J. Lee, J. J. McCarthy. "Applications of Computers in Electron Microscopy." Proceedings of the EMSA Annual Meeting, Clairton Publishing Division, March 1982; published in *Ultramicroscopy*, Vol. 8, 1982, pp. 351-360.

Lee, R. J., J. F. Kelly, J. S. Walker. "Automated Methods for Fiber Measurement and Identification." Presented to the International Congress on Fibrous Dusts, Strasbourg, France, October 1982.

Huggins, F. E., G. P. Huffman, R. J. Lee. "Scanning Electron Microscope-Based Automated Image Analysis (SEM-AIA) and Mossbauer Spectroscopy." *Coal and Coal Products: Analytical Characterization Techniques*, Ed. E. L. Fuller, Jr., ACS Symposium Series #205, American Chemical Society, 1982.

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Lee, R. J., J. F. Kelly, R. M. Fisher, J. J. McCarthy. "Distribution of Chemical Species by Size from Mount Saint Helens Volcanic Ash from Various Sites." Presented to Air Pollution Control Association, Philadelphia, PA, June 1981.

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Huggins, F. E., D. A. Kosmack, G. P. Huffman, R. J. Lee. "Coal Mineralogies by SEM Automatic Image Analysis." Scanning Electron Microscopy, SEM Inc., AMF O'Hare, IL, 1980.

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